

INDEX FORM FOR FIT FILES

This information does not have to be written out for each item to be filed. Instead, fill in Lines 1-3 and photocopy onto yellow paper to make the form obvious in the file. Then under line 4, check the respective box on the yellow sheets. Place the form directly in front of the material it represents.

1. TECHNICAL DIRECTIVE DOCUMENT (TDD) NUMBER: F05 8703 388
2. PROJECT ACCOUNT (PAN) NUMBER: FIL 04056A
3. SITE NAME AND LOCATION: MISSOURI PORTLAND CEMENT
4. FILE DESCRIPTION (Check ONE Only):

RESERVED

- ☐ TECHNICAL DIRECTIVE DOCUMENT(TDD)
- ☐ ACKNOWLEDGEMENT OF COMPLETION(AOC)
- ☐ PERFORMANCE EVALUATION REPORT
- ☐ SITE SAFETY PLAN AND RELATED DOCUMENTS
- ☐ SITE INSPECTION REPORT (EPA 2070-13)
- ☐ HRS RANKING SYSTEM REPORT (HRS)

REPORTS

- ☐ PRELIMINARY ASSESSMENT (EPA 2070-12)
- ☐ PRELIMINARY ASSESSMENT DOCUMENTATION PACKAGE
- ☐ FIT TECHNICAL MEMORANDA/REPORTS

PROJECT INFORMATION (Collected from non-FIT sources)

- ☐ FEDERAL FILE INFORMATION
- ☐ STATE FILE INFORMATION
- ☐ COUNTY/TOWNSHIP FILE INFORMATION
- ☐ CITY FILE INFORMATION
- ☐ SITE OWNER/OPERATOR FILE INFORMATION
- ☐ GEOLOGICAL INFORMATION (e.g. well logs)
- ☒ MISCELLANEOUS FILE INFORMATION

FIELD WORK (FIT GENERATED WORK)

- ☐ WORK PLAN/SAMPLE PLAN
- ☐ QUALITY ASSURANCE PLAN (QAPP)
- ☐ FIELD NOTEBOOKS
- ☐ PHOTOGRAPHS/SLIDES/NEGATIVES
- ☐ SITE SKETCHES/MAPS
- ☐ SAMPLE MANAGEMENT(Chain of Custody, etc.)
- ☐ ANALYTICAL DATA Date _____
- ☐ HYDROGEOLOGIC DATA (i.e., boring logs, pump tests, slug tests, etc.)

GEOPHYSICAL DATA

- ☐ AIR MONITORING DATA
- ☐ TELEPHONE CONVERSATION LOGS
- ☐ MEETING NOTES/CONTACT REPORTS
- ☐ CORRESPONDENCE

SUBCONTRACT MANAGEMENTDRILLING SUBCONTRACTS

- ☐ BID PACKAGE
- ☐ BID REQUEST LETTERS
- ☐ BIDDER'S SUBMITTALS
- ☐ EVALUATION OF SUBMITTALS/MEMORANDUM OF JUSTIFICATION
- ☐ REQUEST FOR SUBCONTRACT APPROVAL
- ☐ CONTRACT
- ☐ SUBCONTRACTOR'S DELIVERABLES
- ☐ INVOICES/INVOICE VERIFICATION
- ☐ CORRESPONDENCE

OTHER SUBCONTRACTS ()

- ☐ BID PACKAGE
- ☐ BID REQUEST LETTERS
- ☐ BIDDER'S SUBMITTALS
- ☐ EVALUATION OF SUBMITTALS/MEMORANDUM OF JUSTIFICATION
- ☐ REQUEST FOR SUBCONTRACT APPROVAL
- ☐ CONTRACT
- ☐ SUBCONTRACTOR'S DELIVERABLES
- ☐ INVOICES/INVOICE VERIFICATION
- ☐ CORRESPONDENCE

OTHER



ORANGE FOOTED PIMPLEBACK MUSSEL

Plethobasis cooperianus (Lea, 1834)

Order: Unionoida

Family: Unionidae

Description: Shell thick, solid, nearly circular to elongate, moderately inflated. Beaks full, elevated, directed forward. Posterior two-thirds of the surface covered with numerous, high pustules. Epidermis yellowish-brown to dark reddish brown. Pseudocardinal teeth--two in the left valve, one in the right--wide, low, massive, triangular, roughened. Lateral teeth--two in the left valve, one in the right--wide, short, heavy, serrated. Interdentum wide; beak cavity compressed, deep. Nacre white; iridescent posteriorly. Mature specimens measure 3-4 inches in length.

Distribution: Alabama and Tennessee (Fed. Reg., 1976).

Indiana: Confined to the Ohio and lower portion of the Wabash Rivers (Goodrich et al, 1944).

Illinois: Wabash River (Parmalee, 1967).

ORANGE FOOTED PIMPLEBACK MUSSEL
Flethobasis cooperianus

Selected References

Federal Register. October 27, 1976.

Goodrich, C. and H. van der Schalie. 1944. A Revision of
the Mollusca of Indiana. Amer. Mid. Nat., 32(2):308.

Parmalee, P. W. 1967. The Fresh-Water Mussels of Illinois.
Popular Science Series, Vol. VIII:88.

ORANGE FOOTED
PIMPLEBACKED MUSSEL



PINK MUCKET PEARLY MUSSEL

Lampsilis orbiculata orbiculata (Hildreth, 1828)

Order: Unionoida

Family: Unionidae

Description: "Whether Lampsilis orbiculata and L. higginsii are separate species remains an open question (Stansbery, pers. comm., September 26, 1967; van der Schalie, pers. comm., January 19, 1968). Morrison (pers. comm. November 27, 1967) recognizes L. abruptus Say, 1831 ("orbiculatus auct, Non Hild.") and L. higginsii Lea, 1868 as two separate species. Stansbery (pers. comm., September 26, 1967) considers that:

'Lampsilis orbiculata and Lampsilis higginsii are distinguishable but I have not enough specimens (nor have I seen enough material in other museums) to enable me to infer whether or not they are con-specific. This being the case, I carry them simply as forms of the same nominal species. I will not be surprised if they are found to be con-specific nor would I be surprised to find they are different species. I just don't know at present'" (Starrett, 1971.) "I have yet to see any morphological intergrades. This is not surprising since the area (of overlap of ranges) is virtually if not entirely devoid of both forms. So long as the evidence of intergradation is absent it is probably best to consider these two forms as separate species." (Stansbery, 1977.)

Natural host: May be freshwater drum or sauger (Stansbery, 1977).

Ecology: Not understood.

Distribution: The Ohio River system above Cairo, Illinois (Stansbery, 1977). Green River, KY; Kanawha River, W. Va.; Tennessee River, Tenn. and Ala.; Muskingum River, Ohio (Ruhr, 1974). Ohio and Cumberland Rivers (Parmalee, 1967) west to the Mississippi River (Burch, 1973). Indiana- New Harmony - Posey County; Wabash River (Goodrich, 1944).

Illinois River: "No live specimen belonging to this complex was taken in the 1966 survey of the river." (Starrett, 1971.) As a result, the author has depended upon shells collected during the survey, literature and museum records to establish the former occurrence of this complex in the Illinois River. "Since identification of the two forms, or species, involved here is quite difficult, the question is raised as to the validity of the Illinois River records of the two species or

forms of this complex in the literature and of the identifications made years ago of museum specimens. The museum specimens of this complex from the Illinois River that have not been checked recently are listed as L. orbiculata complex. This list also includes the specimens examined by the author and one old shell taken in the 1966 survey and checked by Dr. Stansbery. Other Illinois River specimens belonging to this complex and deposited in various collections were checked by the following persons: Benjamin Koons' specimens, Illinois Natural History Survey specimens, and U. S. National Museum collections by Dr. Morrison; sub-fossil shells taken in the 1966 survey by Dr. Stansbery; and the Illinois State Museum collection by Dr. Parmalee. The author has used the identifications made by these taxonomists as the basis for his discussion of the two forms or species of this complex under the next headings of L. orbiculata forma orbiculata and L. orbiculata forma higginsii." (Starrett, 1971.)

Museum Records: (L. orbiculata complex) Starved Rock (Hinkley) UIMNH 4117; LaSalle County (Daniels) UMMZ 86345; Havana (1894 Baker) UIMNH 22153 and (Smith) UMMZ 84351; and Illinois River without locality (Hall, 1861) FMNH 14233. "One mile below Hardin (1907 Bartsch stat. 108) USNM 678666." (Starrett, 1971.)

Live mussel records: 1966 survey of Illinois River - None (Starrett, 1971).

"According to Baker (1906:66) this form or species was collected from the Illinois River by Strode. Concerning orbiculata, Danglade (1914:46) stated: 'There are two examples in our collection, one from Chillicothe and the other from Peoria. The nacre of one is rather pinkish. This species is difficult to separate from higginsii, but is generally more southern in distribution.'" (Starrett, 1971)

"Morrison (Pers. Comm., January 4, 1968) examined two species in the collections of the U. S. National Museum taken from the Illinois River 1 mile below Hardin in 1907. He identified them as L. abruptus and L. higginsii. This was of particular interest in that both of these species or forms had been found occurring together in the river. Morrison (pers. comm., November 27, 1967) commented that: 'The geographic range of abruptus overlaps that of higginsii in the region of the Ohio-Mississippi confluence.'" (Starrett, 1971.)

"The only record recognized by the author of the occurrence of L. orbiculata f. orbiculata (abruptus) in the Illinois was the one mentioned above from the lower river furnished by Dr. Morrison. It appeared to the author that this form or species was never common in the Illinois and occurred only in the lower part of the river. The literature citations given above for the occurrence of L. orbiculata f. orbiculata may refer to either or both of the forms or species of the L. orbiculata complex. This mussel had probably disappeared from the Illinois River before 1930. The fish host of L. orbiculata f. orbiculata is not known." (Starrett, 1971.)

PINK MUCKET PEARLY MUSSEL
Lampsilis orbiculata orbiculata

3

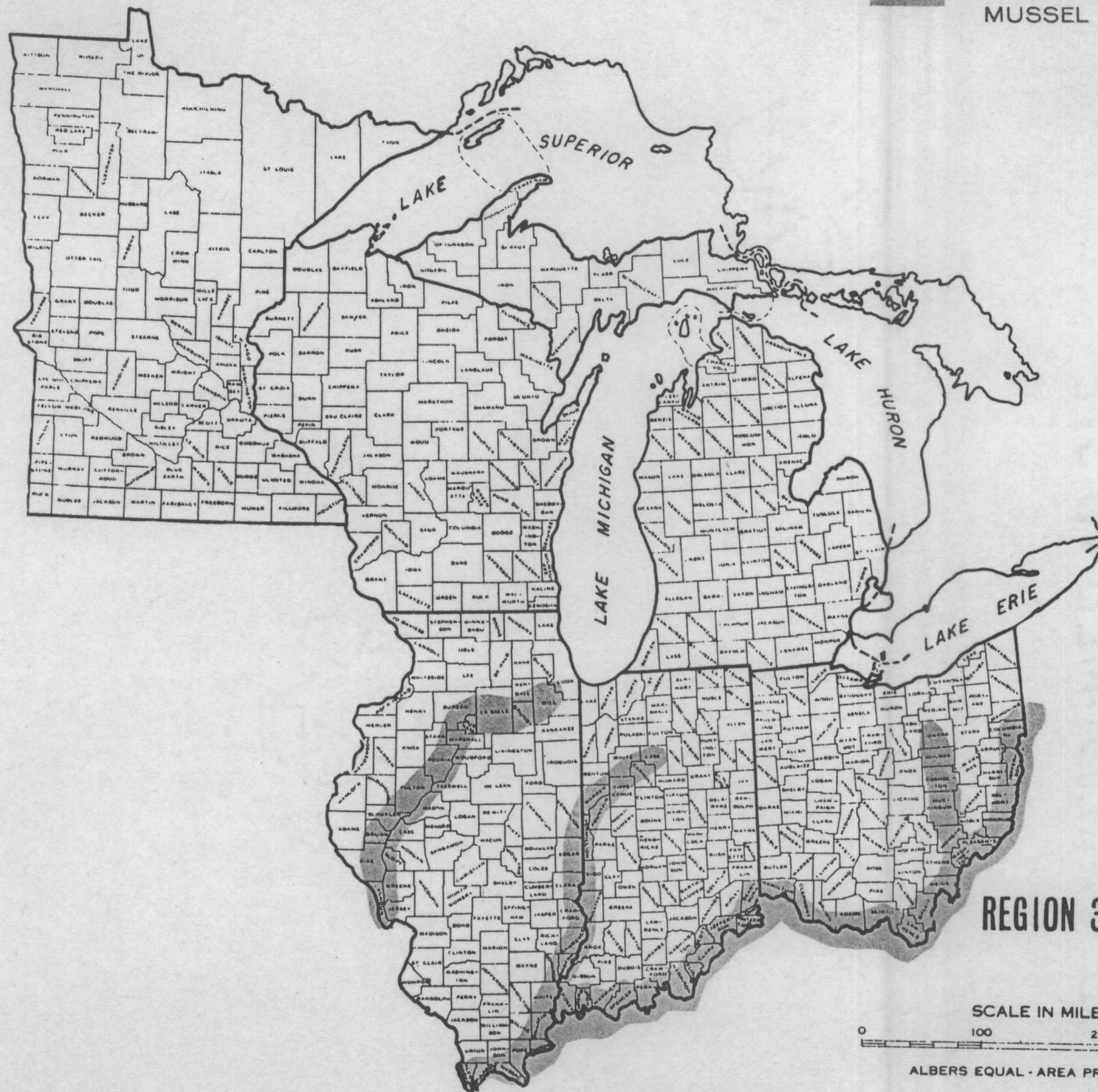
Status: Endangered, Federal Register, Vol. 41, No. 115 -
June 14, 1976.

PINK MUCKET PEARLY MUSSEL
Lampsilis orbiculata orbiculata

Selected References

- Burch, J. E. 1973. Freshwater Unionacean Clams of North America.
Environmental Protection Agency, Project 1805 ELD, Contract
14-12-894. p. 20
- Goodrich, C. and H. van der Schalie. 1944. A Revision of the Mollusca
of Indiana. Amer. Mid. Nat 32(2):247-326.
- Parmalee, P.W. 1967. The Freshwater Mussels of Illinois. Popular
Science Series, VIII:67.
- Buhr, C. E. Pers. Comm. April 10, 1974.
- Stansbery, D. H. Pers. Comm. March 18, 1977.
- Stazrett, W. C. 1971. A survey of the Mussels of the Illinois
River, Illinois Natural History Survey, 30(5):338.

PINK MUCKET PEARLY
MUSSEL



ROUGH PICTOE PEARLY MUSSEL

Pleurobema Plenum (Lea, 1840)

Order: Unionoida

Family: Unionidae

Description: Various forms of Pleurobema, (Cordatum) exist, one form designated as Cordatum plenum (Goodrich and van der Schalie, 1944).

Distribution: Kentucky, Virginia and Tennessee (Fed. Reg., 1976).

Indiana: Largely restricted to the big rivers in the southern portion of the state, such as the Ohio, White and Wabash (Goodrich and van der Schalie, 1944).

ROUGH FIGTOE PEARLY MUSSEL
Pleurobema Plenum

Selected References

Federal Register, October 27, 1976.

Goodrich, C. and H. van der Schalie. 1944. A Revision
of the Mollusca of Indiana. Amer. Mid. Nat., 32(2):257-326.

ROUGH PIGTOE
PEARLY MUSSEL



REGION 3

SCALE IN MILES
0 100 200 300
ALBERS EQUAL-AREA PROJECTION

TUBERCULED-BLOSSOM PEARLY MUSSEL

Epioblasma (-Dysnomia) Torulosa Torulosa (Rafinesque, 1820)

Order: Unionoida

Family: Unionidae

Description: Shell rounded, oval or subtriangular, solid, inflated, generally smooth and rayed; beak sculpture delicate, often obsolete, double-looped; female shell very different from that of the male, having a very decided inflation in the post-basal region, which is thinner than the rest of the shell, of different texture, often toothed and usually radially sculptured.

The inner edge of the mantle in the female in front of the branchial opening is not parallel to the outer edge, but is more or less remote from it, often quite distant from it and has finer or coarser papillae. The mantle between the two edges is peculiarly spongy. Marsupium swollen, kidney-shaped, formed by many ovisacs, occupying the posterior portion of the outer gill (Walker). Type: Unio foliatus Hild.= Obliquaria flexuosa Raf. (Baker, 1928) Description of Epioblasma only.

Distribution: Lower Ohio River in Kentucky and Illinois, Nolichucky River in Tennessee, and Kanawha River in West Virginia (Fed. Reg., 1976).

Indiana: Wabash River - Lafayette, Tippecanoe County and New Harmony, Posey County (Goodrich and van der Schalie, 1944).

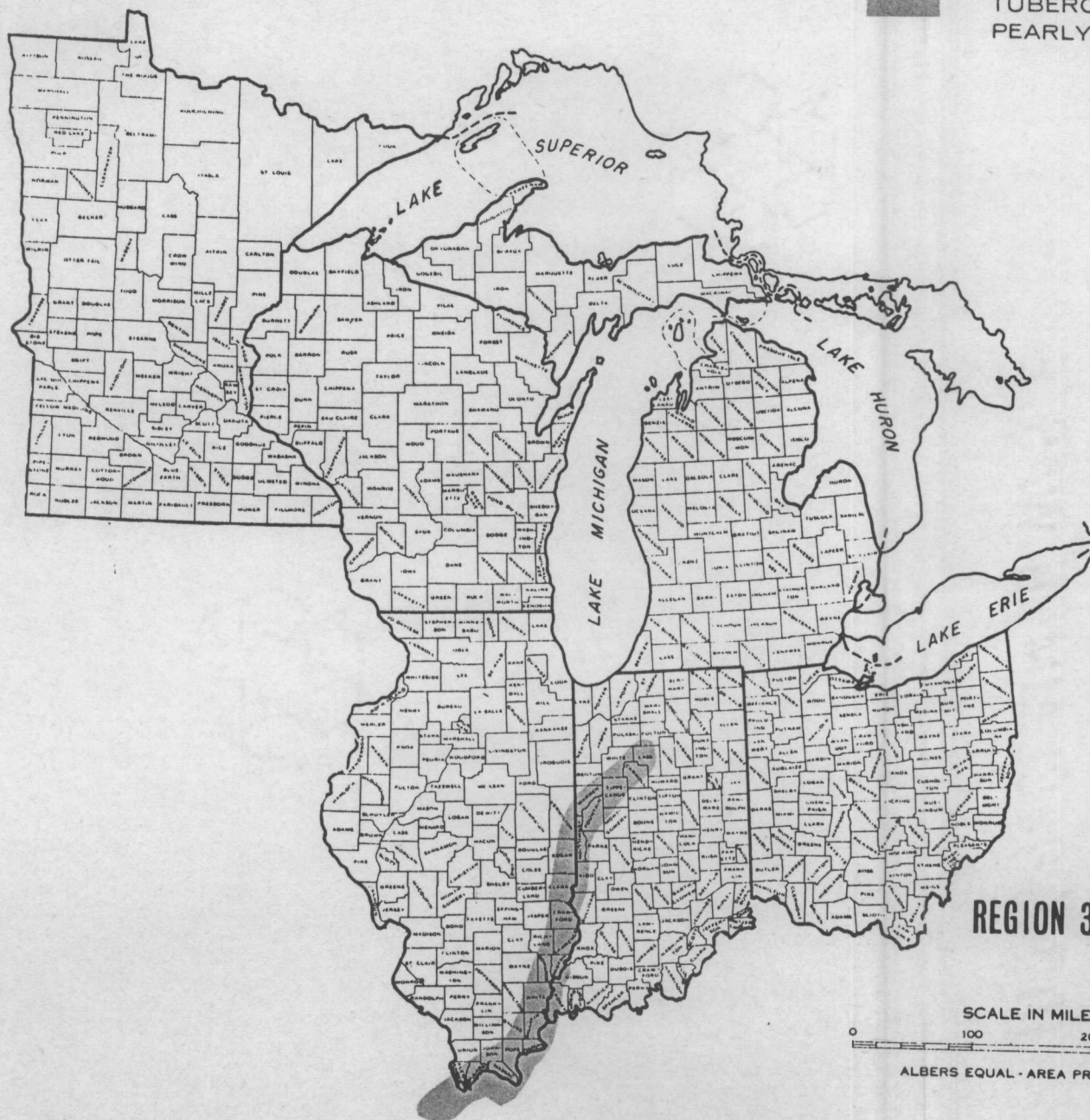
TUBERCULED-BLOSSOM PEARLY MUSSEL
Epioblasma (-Dysnomia) Torulosa Torulosa

Selected References

Federal Register, Vol. 41, No. 115. June 14, 1976.

Goodrich, C. and H. van der Schalie. 1944. A Revision
of the Mollusca of Indiana. Amer. Mid. Nat., 32(2):257-326.

TUBERCULED-BLOSSOM
PEARLY MUSSEL



REGION 3

SCALE IN MILES
0 100 200 300
ALBERS EQUAL-AREA PROJECTION

WHITE CAT'S PAW PEARLY MUSSEL

Epioblasma (-Dysnomia) sulcata delicata (including perobliqua)
(Conrad, 1836)

Order: Unionoida

Family: Unionoidae

Description: "Shell solid, heavy, somewhat ovate, oblong to squarish, inflated. Anteriorventral margin rounded, posterior end truncated. Beaks large, full, elevated and directed anteriorly. Posterior ridge prominent, rounded, often roughened with low, elongated ridges on the growth lines that appear as a row of knobs." (Parmalee, 1967)

Distribution: Detroit River in Michigan and the St. Joseph River in Ohio, Michigan and Indiana (Fed. Reg. 1976).

Indiana: Wabash River - Lafayette, Tippecanoe County and New Harmony, Posey County (Goodrich and van der Schalie, 1944).

Illinois: Ohio and Wabash Rivers (Parmalee, 1967).

WHITE CAT'S PAW PEARLY MUSSEL

Epioblasma (-Dysnomia) sulcata delicata (including perobliqua)

Selected References

Federal Register, Vol. 41, No. 115, June 14, 1976.

Goodrich, Calvin and Henry van der Schalie. 1944. A Revision of the Mollusca of Indiana. Amer. Mid. Nat., 32(2):257-326.

Parmalee, Paul W. 1967. The Fresh-water Mussels of Illinois. Popular Science Series, Vol. VIII.